Macroeconomic implications of Raising Income:The Nigerian Experience.

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22 October 2018

Macroeconomic Implication of Raising Income in Nigeria

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Abstract: *Government, factor owners and investors share an intersecting objective, which is to boost income, notwithstanding its implications on the macroeconomy of Nigeria. More recently is the government drive to raise tax income, accompanied by the labour union agitation for a 110% rise in federal minimum wage in Nigeria. In line with the United Nation's sustainable development goal 9, which is to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation, this study evaluates the macroeconomic implication of raising income in order to achieve this goal in Nigeria. This study makes significant innovation in the unique adoption of minimum wage on labour productivity ratio, tax burden and capital utilization ratio to explain the variations in productivity and output growth in Nigeria. Over the 33 year period, minimum wage increase has caused an average of 12.33% significant reduction in labour productivity, 4.59% decline in capital productivity and 2.56% reduction in real output growth in Nigeria. In the same period, tax burden caused an average of 1.71%, 6.95% and 12.26% increase in the real output growth, labour productivity growth and growth in capital productivity respectively. Capital utilization on the average caused 2.83% increase in capital productivity growth, while declining real output growth by 0.52% in the same period. This signifies the need to boost tax income in the overall interest of productivity and output growth, which could lead to the achieving the UN-SDG-9.*

Keyword: Capital, income, labour, minimum wage, productivity, tax burden

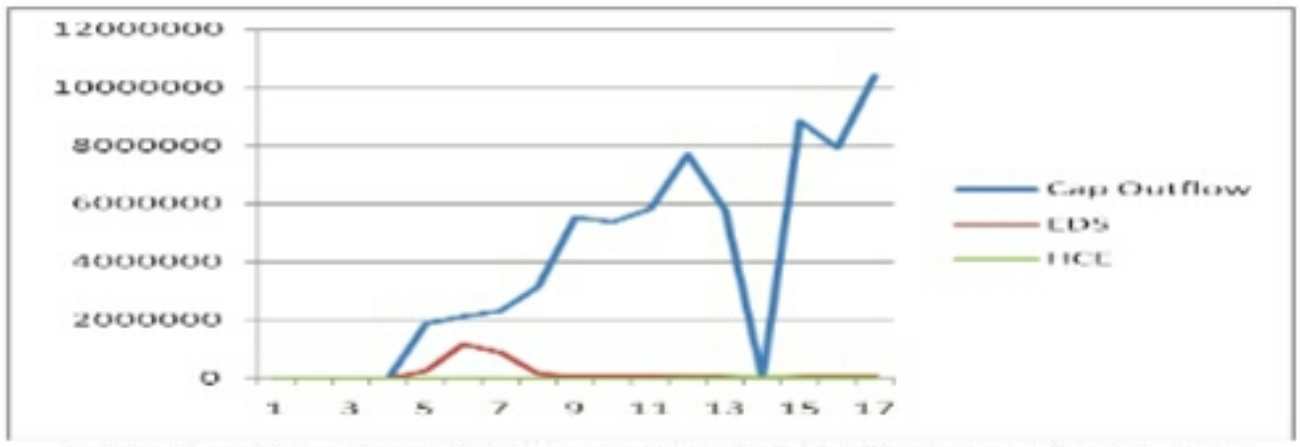
JEL Classification: E24, E25, H22, O47

1 Introduction:

The growth of the Nigerian economy largely depends on its ability to generate sufficient income to finance its infrastructural need and meet its planned spending. This needed income is believed to be generated from sale of oil, taxation and other commercial activities. However, these revenue sources have not been sufficient to finance economic activities and reduce the level of poverty in the country, explaining the rise in debt burden. Due to the small manufacturing capacity, it has not been able to internally generate sufficient income to boost the economy, particularly, human capital in order to boost household income and in turn per capita GDP. Rather, the government has resorted to borrowing in order to meet its economic needs.

Regardless of the growing trend of deficit financing in Nigeria, there has not been evidence of significant impact on the real gross domestic product (Ogege and Ekpudu, 2010; Abula and Ben, 2016; Essien, Agboegbulan, Mba and Onumonu, 2016; Udeh, Ugwu and Onwuka, 2016 etc). Feldstein and Feenberg (1980) rather observed negative relationship between deficit financing and economic growth. Servicing this debt contributes to flight of productive capital, which should have been further channelled to production, but now is moved out of the country (as shown in Fig. 1), further reducing the per capita GDP and increasing poverty level.

Fig. 1: Trend of External Debt service, other capital outflows and Human capital expenditure from 2000 2016



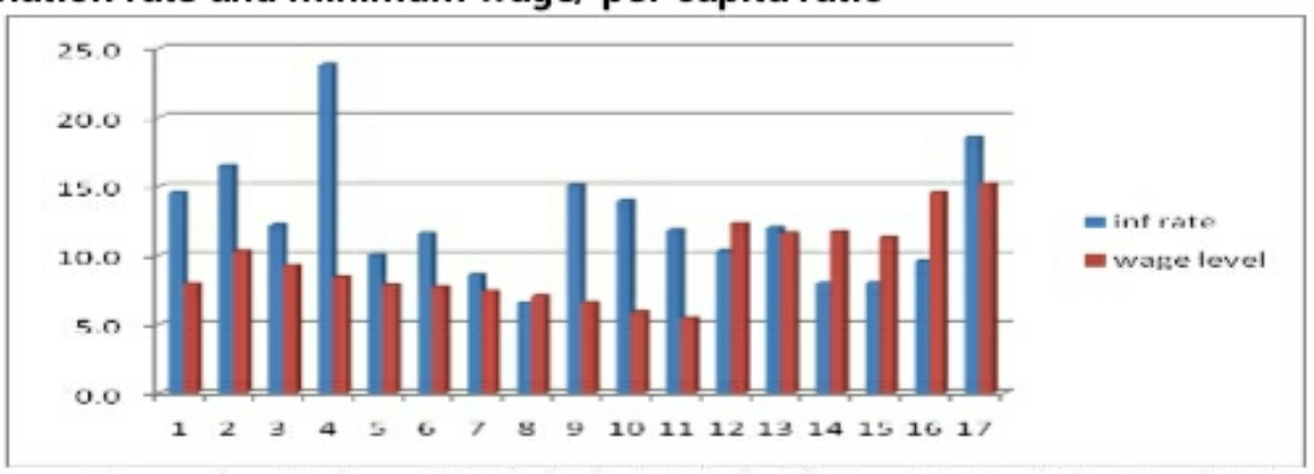
Source: Computed from Central bank of Nigeria (CBN) Statistical Bulletin, 2016

As a country of spectacularly failed economic policies with worsening GDP per capita (Ohwotemu, 2010), the rising level of poverty and income inequality (King, 2003) simply points to the country s inability to properly manage its natural and human resources and utilize the income generated.

Furthermore, Nigeria is a high fertility country and there is evidence that its large population inhibits government s efforts in meeting the basic needs of the people (Onwuka, 2006). With a population that already exceeds 130 million people in 2004 (which at present exceeds 170 million people) and growing at an annual rate of approximately 3%, (United Nations, 2004), a large chunk of the country s resources are channelled to consumption expenditure rather than being accumulated as capital for development purposes. To that extent, the rate of development lags behind that of population growth, which triggers stagnation in social service delivery (Onwuka, 2006). This is further supported by Okolo and Obidigbo (2015) who argued that prior to 2012, population growth rate exceeded the rate of food production, and that the populace are not able to access the available food, given their income level and food prices. This counters whatever progress made in the fight to alleviate poverty in the country.

Raising the tax rate in order to generate income will reduce household disposable income, aggregate demand, firms reinvestment capacity and in turn, output and income is reduced in the next period. In light of rising price level, the burden of tax further impoverishes the populace as the prices of consumption goods rise above the wage level as evidenced in fig. 2 below.

Fig. 2 Trend of Inflation rate and minimum wage/ per capita ratio



Source: author s computation using data from CBN Statistical Bulletin, 2016 and Federal Ministry of Labour and Productivity, International Labour Organization and United Nations Conference on Trade and Development

Despite the tax revenue and expenditure reported yearly by government, basic infrastructure and social amenities, such as steady supply of electricity, portable drinking water, health care delivery, good access roads etc. are grossly inadequate in Nigeria. These problems are mostly blamed on corruption which has caused public funds to find its way into private pockets and other leakage channels, through which capital slips out of the economy, thereby defeating the main purpose of its generation. To this end, this paper sought to critically examine the consequences of raising tax revenue, minimum wage level and capital utilization in Nigeria.

2 Literature Review

Examining the distribution of income in Nigeria, Ohwotemu (2010) revealed from the Lorenz curve that 17.95% of the 19,158 households dominated almost half of the nation s wealth (i.e. 46.7% of the total expenditure), showing inequality in income. Okafor (2016) discovered that income inequality significantly caused increased poverty in Nigeria, which is not reduced by economic growth but rather by stronger institutions capable of reorganising the productive base and reward system. A surprising argument was presented by Bashir, Olufunsho and Jameelah (2015) that growth of the gross domestic product results in increased inequality but reduces poverty in Nigeria.

Kneller, Bleaney and Gemmell (1999), using evidence from OECD countries showed that consumption taxes rather than income taxes are preferred to raise income and boost economic growth, arguing that income taxes negate growth of the economy. Supporting this argument, Ifureze and Odesa (2014), with evidence from Nigeria recommended indirect tax rather than direct taxes, given its significant and positive effect on the economy of Nigeria. On the other hand, several authors observed that tax revenue had significant positive relationship with the Nigerian economic growth (Garba, 2014; Okoli, Njoku and Kaka, 2014; Onakoya, Afintinni and Ogundajo, 2017). However, while petroleum profit tax, company income tax and value added tax had positive impact on the economy, custom excise and duties impacted negatively (Omo and Ismail, 2013; Garba, 2014). With evidence from Malawi, Chipeta (2002) explained that the tax base of the official economy can be raised by cutting excise tax and import surtax rates of the second economy. In Cameroon, the incidence of expenditure taxes changes with the changing economic environment and reveals that the indirect tax reforms of 1994 and 1999 have been generally pro-poor (Tabi and Afeanyi, 2006).

On the minimum wage level review, Fajana (1983) found that a percentage increase in federal minimum wage leads to 0.23 percent cut in employment in Nigeria, signifying a strong negative relationship between wage and employment which will in turn similarly affect economic growth, and poverty as revealed by Siyan, Adegoriola and Adolphus (2016). This is supported by the findings of Douty (1960) regarding the American experience in 1956, Campoleti et al (2006) and Brander (2013) regarding Canada. Stigler in 1946 finds that minimum wage increase pushes workers to the informal sector with very low wages and McKee and West (1984) observed that increase in minimum wage caused a shift from part-time work to smaller number of full-time employees. However, studies such as Card (1992), Stewart (2003) and FLinn (2006) found no adverse impact in employment accompanied with changing minimum wage levels. Other studies found that minimum wage increase positively correlate with employment, and in turn economic growth (Katz and Kreuger, 1992; Card and Kreuger, 1993; Brenner and Luce, 2003; Reich and Jacobs, 2003). More specifically, in Sub-Saharan Africa, Bhorat, Kanbur and Stanwix (2015) discussed that large and immediate minimum wage increases results in job losses, while modest increase has little or no observable effect on employment, rather may eventually cause wage increase.

While the size of the Nigerian populace is more than 170 million, with more than 50% as youths, Meer and West (2013) details that minimum wage increase has profound effect on the younger workers and firms with high concentration of low-wage works. Population size was found to be positively related to growth of the economy (Tartiyus, Dauda and Amade, 2015), therefore, job losses resulting from minimum wage increase will not only result in declining gross domestic product, but also per capita income, household income , rising poverty level and revenue degeneration. It is therefore imperative to lucidly examine the consequences of boosting income in Nigeria.

3 Methodology

Data

The study adopts time series data sourced from national and international institutions, namely: Central Bank of Nigeria (CBN), Federal Ministry of Labour and Productivity, Nigeria, International Labour Organization (ILO) and United Nations Conference on Trade and Development (UNCTAD). The data scope cover the period of 1985 to 2017 (33 years) and represents Nigerian statistics. Therefore, the data are exclusively indicators of performance in Nigeria. The burden of tax (TB) and growth rate of the real gross domestic product (RGDPGR) were estimated using data from the central bank of Nigeria; growth in the productivity of labour (LPGR) and capital (CPGR) was estimated using data from the ILO, UNCTAD and CBN; the minimum wage-labour productivity ratio (MWPCIR) was estimated using data from the Federal ministry of Labour and Productivity, CBN, ILO and UNCTAD, while capital utilization ratio (KUR) was estimated using data from CBN.

Empirical Model

The first model was designed to provide evidence of the impact of raising tax burden, ratio of minimum wage to labour productivity and capital utilization rate on the growth of the Nigeria economy. Tax burden, minimum wage-labour productivity rate and capital utilization rate, which are unique factors representing the tax income, average minimum income of the active labour and capital utilization respectively, Thus, the model is expressed as:

$$RGDPGR_t = \alpha_0 + \varphi_1 TB_t + \varphi_2 MWPCIR_t + \varphi_3 KUR_t + \mu_t \quad (1)$$

The second model was formulated to evaluate the impact of minimum wage level and tax burden in boosting labour productivity in Nigeria. The interest of this model formulation is to provide evidence on the factors that explain labour productivity in Nigeria. The model is therefore, formulated as:

$$LPGR_t = \alpha_0 + \varphi_1 MWPCIR_t + \varphi_2 TB_t + \mu_t \quad (2)$$

The third model estimates the impact of minimum wage level, tax burden and capital utilization in boosting capital productivity in Nigeria. The interest of this model formulation is to provide evidence on the factors that explain capital productivity in Nigeria. The model is therefore, formulated as:

$$CPGR_t = \alpha_0 + \varphi_1 MWPCIR_t + \varphi_2 TB_t + \varphi_3 KUR_t \mu_t \quad (3)$$

Definition of estimated variables and apriori assumptions

MWPCIR: This is the ratio of minimum wage to the productivity of each worker in Nigeria, expressing the the minimum wage paid to labour for each unit of final output. It is expected that increase in minimum wage will have adverse negative effect on employment (Fajana, 1983), aggregate demand and in turn output (RGDP). This is in line with Fajana s (1983) findings that 100% increase in federal minimum wage results in 23% decrease in employment.

TB: The burden of tax is expressed as the ratio of tax revenue to the real gross domestic product. It is therefore, the incidence of tax on each unit of final output in Nigeria. Therefore, increase in tax burden is expected to have counterproductive effect on real gross domestic product and in turn on productivity (CPGR and LPGR) in Nigeria in the current period. However, if the tax income is reinvested into the economy, its relationship becomes positive in the next period. Furthermore, where the increase in tax burden resulted from a decline in the real gross domestic product, it is a priori expected to have negative relationship; otherwise, the sign becomes positive.

LPGR: This represents the rate at which the share of the real gross domestic product to the working population increases or decreases. LPGR is expected to have a negative relationship with minimum wage-per capita income ratio (WPCIR) and tax burden (TB).

CPGR: Capital productivity growth rate represents the rate at which the share of the real gross domestic product to capital increases or decreases. CPGR is expected to have a negative relationship with minimum wage-labour productivity ratio (WPCIR) and tax burden (TB), while showing a positive relationship with capital utilization rate (KUR).

KUR: The capital utilization ratio is simply the portion of the total capital stock that is utilized in the production of the final output in the country. The KUR is expected to show a positive relationship with the growth of capital productivity (CPGR) and growth of the real gross domestic product if the growth in capital utilization ratio stem from increase in capital input rather than a reduction of total capital stock. However, the relationship turns negative if the increase in the ratio results from a reduction in total capital stock in the economy.

RGDPGR: This is estimated by subtracting the previous year output from current year output and dividing the outcome by the previous year output. (i.e. $\Delta RGDP/RGDP_{t-1}$). This shows the rate at which gross output of the economy is growing (more commonly referred as the rate of growth of the economy).

α_0 is the intercept of the respective models. φ_1, φ_2, φ_3 are parameter coefficients.

Techniques of Analysis

The model is estimated using the error correction mechanism of the ordinary least square, having stationarized the time series variables at I (1). Growth rate of the variables were adopted to empirically show the impact of raising income (government, labour and capital) on factor productivity and economic growth in Nigeria. Furthermore, utilizing the Pairwise Granger Causality, we determined the causal behavior of the variables.

4 Empirical Results and Discussion

The impact of raising tax income, minimum wage income and capital utilization on the growth of the Nigerian economy

Evidence from model one proved that minimum wage on labour productivity has negative implications on productivity and the growth of the economy. This supports the findings of Fajana (1983) and further deepens the adverse effect of raising minimum wage in Nigeria. The result revealed that increasing the minimum wage by 1% reduces labour productivity by 1.69%, capital productivity by 0.66% and plunge the economy into recession by 0.35%. This is crucial in light of the current agitation to raise Federal minimum wage in Nigeria from ₦19,000 to ₦40,000 (i.e 110.53% increase), which will force the economy in recession by 38.5% and decline in labour productivity by 185.9% and capital productivity by 38.6%. An economy that has scarcely recovered from recession, raising the minimum wage by more than 100% is not prudential and needs to speedily retrace its steps in order to prevent a return to economic recession. Contrary to a priori expectation, tax burden, which typically depicts government tax income on each output produced in the economy, showed a positive relationship with real gross domestic growth in Nigeria, agreeing with Garba (2014), Njoku and Kaka (2014), and Onakoya, Afintinni and Ogundajo (2017). However, it is assumed to have been reinvested in the next fiscal year as it was discovered to have significant positive impact on the economic growth after one year and contributing 0.93% to the growth real gross domestic product for every one percent reinvested.

Interestingly, capital utilization ratio had negative impact on the growth of real gross domestic product, although not significant in the current period. However, in the next year and after two years, the effect of current capital utilization became positive, which is a priori expected. It is pertinent to note that

accumulation and optimal utilization of capital is desired to boost the economy. However, we observed from fig. 1 that the negative impact of capital utilization may have resulted from the flight of capital from the economy. While minimum wage, tax burden and capital utilization ratio did not individually significantly impact on the growth of the Nigerian economy, their collective influence is significant and therefore cannot be overlooked.

Raising tax income and minimum wage: Implications on labour Productivity in Nigeria

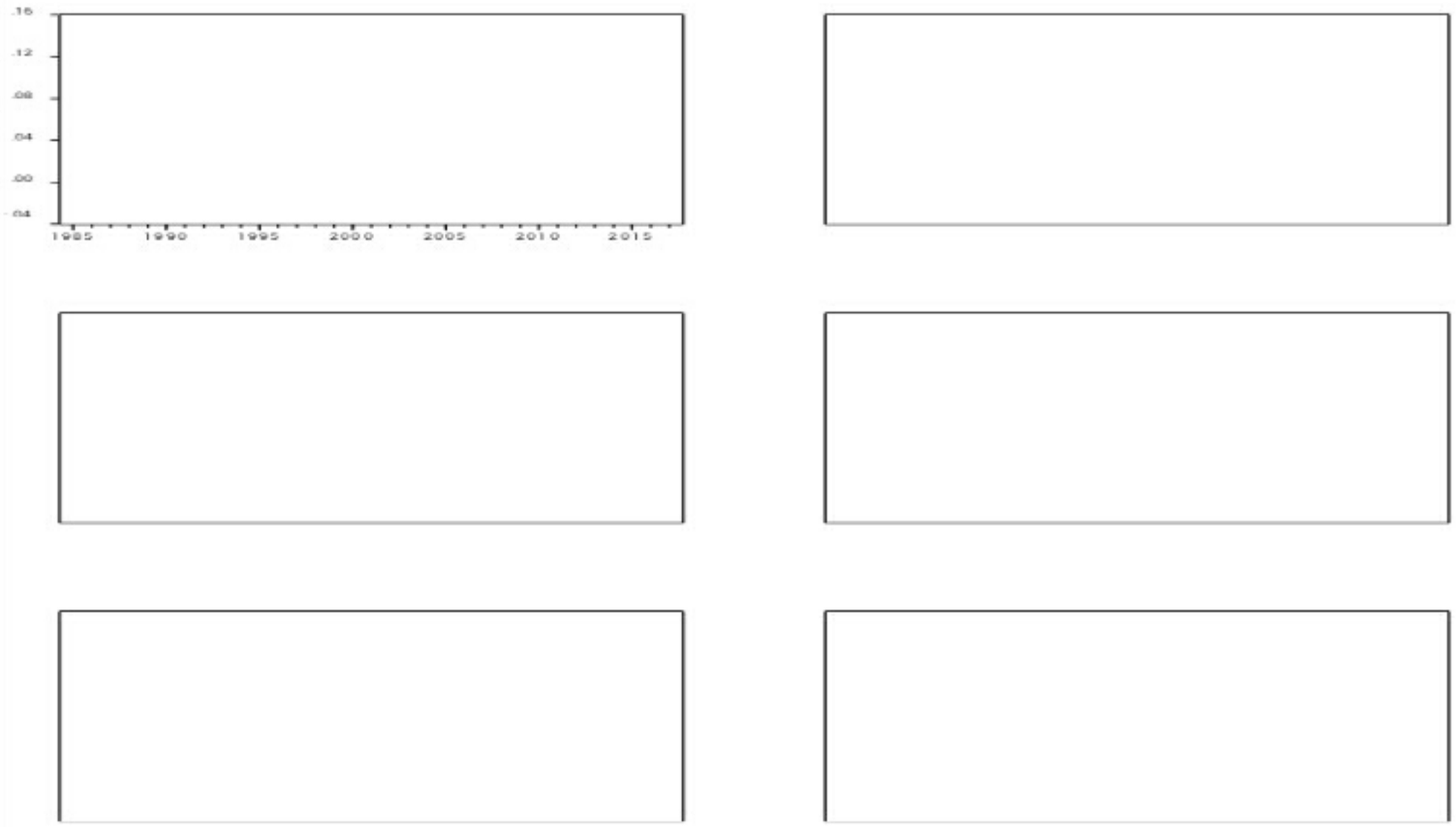
On the consequences of raising minimum wage and tax burden on the productivity of labour, the average minimum wage paid to each labour for its annual output negatively and significantly impact on the labour productivity. It causes the labour productivity to grow by 1.69% for every one percent it contributes and given an average growth of minimum wage on labour productivity ratio of 7.32% from 1985 to 2017, it implies that the minimum wage has already negatively declined the productivity of labour by about 12.33%. Tax burden on the other hand had significant positive impact on the productivity of labour, although contrary to its expected relationship. We found that tax burden (i.e. the revenue generated from taxing each unit of domestic output) boosted labour productivity rather than being counterproductive. Nevertheless, in the second year, its effect turned negative, although not significant. This positive relationship may have resulted from decline in the real gross domestic product seemingly increasing rather than it growing as a result of increase in tax revenue. The result showed that these explanatory variables collectively caused 50.59% of the variations in labour productivity growth in Nigeria.

Implications of boosting minimum wage, tax burden and capital utilization on the productivity of capital in Nigeria

Evidence from the result revealed that minimum wage negatively impacted on capital productivity growth. It caused capital productivity to decline by 0.63% every time minimum wage increases by one percent. Its effect remained counterproductive even after one year. It is in the third year that a raise in minimum wage becomes positively related to the productivity of capital utilized in Nigeria. From the result of the vector Autoregression analysis, factor productivity is generally boosted by about 1.9% in the next year as a result of one percentage increase in minimum wage. Therefore, predicting the impact of 110% increase in minimum wage in Nigeria, capital productivity and labour productivity will grow by 47.17% and 62.40% respectively, while the economy declines by 0.35% after two years. The pertinent question therefore is, would Nigerians be willing to return to recession for another two years or more for a 110% increase in minimum wage? Tax burden showed positive relationship with capital productivity in Nigeria. Capital utilization the other hand proved productive but insignificant, boosting productivity by 0.032% per marginal increase in capital utilization. While these explanatory variables did not individually impact significantly on the productivity of capital, they collectively significantly caused 37.08% of the variation in capital productivity growth.

Trend analysis of income performance, output growth and productivity in Nigeria

Fig. 3 Trend of real gross domestic output growth (RGDPGR), capital productivity growth (CPGR), labour productivity growth (LPGR), minimum wage on labour productivity ratio (MWPCIR), tax burden (TB) and capital utilization ratio (KUR).



Source: author s estimation using time series data from CBN, ILO, UNCTAD, FMLP

Labour productivity in Nigeria, over 33 years grew negatively one-third of the time, with an average growth rate of 1.7%. Notably, its most substantial negative growth was between 2015 and 2017 and its best performance in 1999, having 14.8% growth performance. Nigeria s best growth performance was in 2012, with 14.6% growth rate. This implies that in 2014 when Nigeria was acclaimed the fastest growing economy in the world was not its best performance. Rather it emerged among economies going through difficult times, shortly to witness economic decline. Tax income and Income on labour in Nigeria is grossly insufficient, exemplifying the low income earnings in Nigeria. Minimum wage maintained an average at 7.32%. This suggests that on the average, only about 7.32% of what the lower class workers produce annually is returned back to them as wage. This is very poor and signifies underemployment of the lower class workers in the economy. Furthermore, an average of about 7.45% of what is produced is received as tax income to the government. Nevertheless, capital utilization in Nigeria remained mostly above 60% as capital productivity outperformed labour productivity, showing its best performance in 2008 at 57.54%. This shows that Nigeria tilted towards capital intensive method of production. It further suggests that capital generally receives higher return than labour in Nigeria.

5 Conclusion

The drive to generate more income has been an intersecting objective of government, investors and factor owners alike. However, there has to be some level of trade off in level of income and time lags if the economy must be stirred towards the path of growth. The minimum wage increase must be properly managed in order not to reduce factor productivity and slide the economy back into recession as evidenced in the study. While the labour unions in Nigeria demand an increase in the minimum wage due to rising cost of living above the minimum wage level, government can encourage domestic production and redirect consumption to made-in-Nigeria goods, and work for favourable trade balance as a means to control price level in the long run, rather than raising the current minimum wage. Tax burden had positive impact on factor productivity and output growth in Nigeria. However, government should

continue to maintain relatively low and stable tax policies in order to encourage domestic and foreign investments.

Factor productivity showed causal relationship with growth of real gross domestic product in Nigeria at 10% level of significance, while capital utilization ratio, even at 1% significance level, significantly granger caused tax burden. Hence, shock to factor productivity would substantially reflect on shock to output growth. The same effect is expected to flow from capital utilization to tax burden. The direction of causality signifies the need for substantive positive shock to factor productivity in order to boost economic growth. This may come as wage and tax policy reformulation to boost investment and create employment, which multiplies on output growth.

Table 1: Regression Model 1

Dependent Variable: D(RGDPGR)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000393	0.006242	-0.062960	0.9503
D(MWPCIR)	-0.351124	0.277578	-1.264956	0.2167
D(TB)	0.229008	0.261223	0.876677	0.3884
D(KUR)	-0.006078	0.024980	-0.243323	0.8096
ECM(-1)	-0.670033	0.182926	-3.662872	0.0011
R-squared	0.335661	Mean dependent var		-0.002406
Adjusted R-squared	0.237241	S.D. dependent var		0.038781
S.E. of regression	0.033870	Akaike info criterion		-3.789965
Sum squared resid	0.030974	Schwarz criterion		-3.560944
Log likelihood	65.63944	Hannan-Quinn criter.		-3.714051
F-statistic	3.410479	Durbin-Watson stat		1.863275
Prob(F-statistic)	0.022136			

Source: author s computation

Table 2: Regression model 2

Dependent Variable: D(LPGR)				
Included observations: 32 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.004975	0.010886	0.456965	0.6512
D(MWPCIR)	-1.685323	0.466523	-3.612522	0.0012
D(TB)	0.932224	0.450271	2.070363	0.0478
ECM(-1)	-0.733866	0.195734	-3.749292	0.0008
R-squared	0.505927	Mean dependent var		-0.005100
Adjusted R-squared	0.452990	S.D. dependent var		0.079986
S.E. of regression	0.059158	Akaike info criterion		-2.700743
Sum squared resid	0.097991	Schwarz criterion		-2.517526
Log likelihood	47.21188	Hannan-Quinn criter.		-2.640012
F-statistic	9.557253	Durbin-Watson stat		2.010543
Prob(F-statistic)	0.000164			

Source: author s computation

Table 3: Regression model 3

Dependent Variable: D(CPGR)		

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.000966	0.026521	-0.036439	0.9712
D(MWPCIR)	-0.627751	1.157405	-0.542378	0.5920
D(TB)	1.644978	1.069886	1.537527	0.1358
D(KUR)	0.032945	0.106110	0.310478	0.7586
ECM(-1)	-0.605123	0.178096	-3.397739	0.0021
R-squared	0.370825	Mean dependent var		-0.001111
Adjusted R-squared	0.277614	S.D. dependent var		0.169018
S.E. of regression	0.143654	Akaike info criterion		-0.900212
Sum squared resid	0.557188	Schwarz criterion		-0.671190
Log likelihood	19.40339	Hannan-Quinn criter.		-0.824298
F-statistic	3.978329	Durbin-Watson stat		1.931808
Prob(F-statistic)	0.011535			

Source: author s computation

Table 4: Vector Error Correction Estimates Excerpt

Vector Error Correction Estimates			
Standard errors in ( ) & t-statistics in [ ]			
Error Correction:	D(RGDPGR)	D(CPGR)	D(LPGR)
CointEq1	-0.491719	-0.355422	-0.103783
	(0.27377)	(1.31596)	(0.70897)
	[-1.79612]	[-0.27009]	[-0.14639]
D(MWPCIR(-1))	-0.378389	-1.098855	-0.130413
	(0.40141)	(1.92950)	(1.03952)
	[-0.94266]	[-0.56950]	[-0.12545]
D(MWPCIR(-2))	-0.006393	0.471728	0.623918
	(0.33715)	(1.62064)	(0.87312)
	[-0.01896]	[0.29107]	[0.71459]
D(TB(-1))	0.710812	1.077908	-0.054470
	(0.34269)	(1.64728)	(0.88747)
	[2.07420]	[0.65436]	[-0.06138]
D(TB(-2))	0.304751	1.761586	0.218173
	(0.35628)	(1.71259)	(0.92265)
	[0.85537]	[1.02861]	[0.23646]
D(KUR(-1))	0.099646	-0.305572	0.047789
	(0.05322)	(0.25583)	(0.13783)
	[1.87226]	[-1.19443]	[0.34673]
D(KUR(-2))	0.054764	-0.102391	0.007841
	(0.04219)	(0.20282)	(0.10927)
	[1.29790]	[-0.50483]	[0.07176]
C	-0.001489	-0.001959	-0.009653
	(0.00617)	(0.02963)	(0.01597)
	[-0.24150]	[-0.06611]	[-0.60462]

Source: author s computation

Table 5: Pairwise Granger Causality Test Excerpt

Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
CPGR does not Granger Cause RGDPGR	31	3.19084	0.0576
RGDPGR does not Granger Cause CPGR		0.60608	0.5530
LPGR does not Granger Cause RGDPGR	31	3.08892	0.0626
RGDPGR does not Granger Cause LPGR		0.18937	0.8286
KUR does not Granger Cause TB	31	9.54057	0.0008
TB does not Granger Cause KUR		1.10179	0.3473

Source: author s computation

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